

**APPENDIX A**

**SUGGESTED RADIOACTIVE MATERIAL LICENSE**

**FOR THE FEDERAL CELL FACILITY**

UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY  
DIVISION OF WASTE MANAGEMENT AND RADIATION CONTROL  
RADIOACTIVE MATERIAL LICENSE

Pursuant to the Utah Code Annotated, Title 19, Chapter 6 and R313 of the Utah Administrative Code (UAC) and in reliance on statements and representations heretofore made by the licensee designated below, a license is hereby issued authorizing such licensee to transfer, receive, possess and use the radioactive material designated below; and to use such radioactive material for the purpose(s) and at the place(s) designated below. This licensee is subject to all applicable rules, and orders now or hereafter in effect and to any conditions specified below.

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	LICENSEE	) 3. License Number UT 2300XXX
		) Amendment #0
1. Name:	EnergySolutions, LLC (the Licensee)	)*****
		) 4. Expiration Date
2. Address:	299 South Main Street	) December 31, 2031
	Suite 1700	)
	Salt Lake City, Utah 84111	)*****
		) 5. License Category – 4-a
		)
		)
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6. Radioactive material (element and mass number)	7. Chemical and/or physical form	8. Maximum quantity Licensee may possess at any one time
depleted uranium	Packaged or Bulk	2,559,266 Cubic Yards
	Radioactive Waste	

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9. AUTHORIZED USE:

- A. The Licensee may receive, store and dispose by land burial, radioactive material as concentrated depleted uranium radioactive waste. Prior to receiving depleted uranium waste shipments for disposal from a generator, the Licensee shall obtain documentation which demonstrates that the wastes have been approved for disposal in the Federal Cell Facility by the U.S. Department of Energy.
- B. In accordance with Utah Code Annotated 19-3-105, the Licensee may not receive Class B or Class C depleted uranium for management in the Federal Cell Facility without first receiving approval from the U.S. Department of Energy, the Director of the Division of Waste Management and Radiation Control (Director), the Governor for the State of Utah and the Utah State Legislature.
- C. The Licensee shall comply with all license conditions and shall meet all compliance schedules stipulated in the Ground Water Quality Discharge Permit, number UGW 450005 (hereafter GWQ Permit), issued by the Director.
- D. The Licensee shall only dispose of depleted uranium radioactive waste below the native grade in the Federal Cell Facility described in License Condition 10.

- E. The Licensee shall not accept, possess, store or dispose of any radioactive waste delivered to the Federal Cell Facility by any conveyance, unless the associated Uniform Low-Level Radioactive Waste Manifest has a valid Generator Site Access Permit number issued by the Director, thereon affixed.

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**SITE LOCATION:**

10. A. The Licensee may receive, store, transload, and dispose of depleted uranium at the Licensee's Federal Cell Facility located in Section 32 of Township 1 South and Range 11 West, SLBM, Tooele County, Utah. The Licensee may receive, transload closed packages and store licensed materials within certain portions of the Licensee's facility located in Section 29 of Township 1 South, Range 11 West, SLBM, Tooele County, Utah. The Licensee may exempt waste and transfer for disposal within certain portions of the Licensee's facility located in Section 5 of Township 2 South, Range 11 West, SLBM, Tooele County, Utah.

- B. The Federal Cell Facility is defined by the following points of reference:

Southwest Corner:	Latitude 40° 40' 53.56900" N Longitude 113° 07' 24.73673" W Elevation 4266 feet above mean sea level (amsl)
Southeast Corner:	Latitude 40° 40' 53.22834" N Longitude 113° 07' 08.82348" W Elevation 4266 feet above mean sea level (amsl)
Northwest Corner:	Latitude 40° 41' 12.53333" N Longitude 113° 07' 24.03690" W Elevation 4266 feet above mean sea level (amsl)
Northeast Corner:	Latitude 40° 41' 12.19274" N Longitude 113° 07' 08.12240" W Elevation 4266 feet above mean sea level (amsl)

**CONDITIONS:**

11. The open cell area within the Federal Cell Facility, where uncovered waste disposal/placement has occurred shall be limited to a waste surface area of 1,376,113 square feet.

**PROHIBITIONS AND WASTE ACCEPTANCE REQUIREMENTS:**

12. A. Sealed sources as defined in UAC R313-12 shall not be accepted for disposal.
- B. Waste containing untreated biological, pathogenic or infectious material including radiologically contaminated laboratory research animals is prohibited.
- C. Receipt of non-aqueous liquid waste for management in the Federal Cell Facility is prohibited unless specifically approved by the Director.
- D. The Licensee shall not accept for disposal in the Federal Cell Facility any neutron source (e.g., polonium-210, americium-241, radium-226 in combination with beryllium or other target).
- E. Incinerator ash shall be treated, in preparation for disposal, in a manner that renders it non-dispersible in air.

- F. The Licensee shall not accept depleted uranium waste unless:
- i. Each disposal container has been classified in accordance with UAC R313-15-1009 and Utah Code 19-3-103.7(1). In addition, the Licensee shall require that all radioactive waste received for disposal meet the requirements specified in the Nuclear Regulatory Commission, "Concentration Averaging and Encapsulation Branch Technical Position," as amended.
  - ii. Each disposal container is marked as either Class A Stable or Class A Unstable as defined in the most recent version of the "Low-Level Waste Licensing Branch Technical Position on Radioactive Waste Classification" issued by the U.S. Nuclear Regulatory Commission. The marking may be affixed to either the disposal container or transport package, in accordance with UAC R313-15-1006(4) and Section III of Appendix G of 10 CFR 20.1001 to 20.2402 (incorporated by reference).
  - iii. Each disposal container is marked with a unique package identification number, clearly visible on the package that can be correlated with the manifest for the waste shipment in which the package arrives at the facility.
- G. The Licensee shall not accept waste that does not include depleted uranium.

**MANAGEMENT OF FREE LIQUIDS:**

13. A. In accordance with UAC R313-15-1009(2)(a)(iv), solid waste received for disposal at the Federal Cell Facility shall contain as little free standing and non-corrosive liquid as reasonably achievable, but shall contain no more free liquids than one percent of the volume of the waste.
- B. Solid waste received for disposal at the Federal Cell Facility, that contains unexpected aqueous free liquid in excess of 1% by volume shall have the liquid removed and placed in the evaporation ponds or the liquid solidified prior to management.
- C. Unexpected non-aqueous free liquids less than 1% of the volume of the waste within the container shall be solidified prior to disposal.
- D. Should shipments arrive with greater than 1% unexpected free liquids (total of aqueous and non-aqueous), the Licensee shall notify the Director within 24 hours that the shipment(s) failed the requirements for acceptance and manage in accordance with the Waste Characterization Plan (Condition 58 of Radioactive Material License UT2300249).

**RADIATION SAFETY:**

14. The Licensee may transport licensed material or deliver licensed material to a carrier for transport in accordance with the provisions of UAC R313-19-100, "Transportation."
15. Written procedures incorporating operating instructions and appropriate safety precautions for licensed activities shall be maintained and available at the location specified in License Condition 10.A. The written procedures established shall include the activities of the radiation safety and environmental monitoring programs, the employee training program, operational procedures, analytical procedures and instrument calibration. At least annually, the Licensee shall review all procedures to determine their continued applicability.
16. The Licensee's Radiation Safety Officer (RSO) shall review and approve written procedures as stated in License Condition 15 and subsequent changes to the procedures related to waste disposal operations.

**ROUTINE MONITORING AND CONTAMINATION SURVEYS:**

17. The operational environmental monitoring program shall be conducted in accordance with the current Environmental Monitoring Plan approved by the Director (Condition 26 of Radioactive Material License UT2300249).
18. Vehicles, containers, facilities, materials, equipment or other items for unrestricted use shall not be released from the Licensee's control if contamination exceeds the limits found in Table 18-A of Radioactive Material License UT2300249.

**REPORTING AND NOTIFICATION:**

19. The Licensee shall submit to the Director a quarterly summary report detailing the radioisotopes, activities, weighted average concentrations, volume and tonnage for waste received for management at the Federal Cell Facility during the calendar quarter. The report(s) shall be submitted within 30 days after the expiration of each calendar quarter. Calendar Quarter shall mean:

First Quarter	January, February, and March
Second Quarter	April, May, and June
Third Quarter	July, August, and September
Fourth Quarter	October, November, and December

**CONSTRUCTION ACTIVITIES:**

20. The Licensee shall construct the Federal Cell Facility identified in the Ground Water Quality Discharge Permit No. UGW450005 and in accordance with approved engineering design drawings "Series 14004."
21. Waste placement and backfilling within the Federal Cell Facility shall be conducted in accordance with the following:
  - A. The Federal Cell Facility shall conform to the characteristics defined, analyzed and described in the Engineering Justification Report, Addendum "Fifteen Percent Void Space Criteria" (Revision 1 dated October 10, 2001); and the AMEC letter to Envirocare of Utah, Inc. "Placement of Drums and B-25 Containers with 15 Percent Voids; Envirocare Class A - Containerized Waste Facility Near Clive, Utah" (dated October 2, 2001). Waste containers that have void space in excess of 15 percent shall be filled to the top of the container opening using Controlled Low Strength Material (CLSM) in accordance with the C QA/QC manual. The Licensee is exempt from the CLSM cold weather requirements and the 48-hour notification for void remediation at the Federal Cell Facility.
  - B. Waste container configurations, backfill materials and associated placement activities, shall be those approved by the Director following specifications contained in the Work Element: Federal Cell Facility-Waste Placement Test Pad and the Work Element: Federal Cell Facility - Waste Placement Sections of the currently approved LLRW Construction Quality Assurance/Quality Control Manual.
  - C. Disposal of non-containerized decomposable or compressible waste at the Federal Cell Facility shall be in accordance with debris placement requirements of the CQA/QC Manual.
22. The Licensee shall fulfill all requirements and maintain compliance with all License Conditions in the FCF CQA/QC Manual and engineering drawings currently approved by the Director.
23. All engineering related soil tests conducted by the Licensee to demonstrate compliance with Condition 32 shall be performed by a laboratory certified and accredited by the AASHTO Materials Reference Laboratory (AMRL).

Said certification/accreditation shall apply to clay liner, clay radon barrier, soil filter layers, sacrificial soils and riprap materials or other soil or man-made materials as directed by the Director. Certification is not required for the Director approved sealed single ring infiltrometer permeability test contained in Appendix B to the CQA/QC Manual.

24. The Licensee shall not initiate disposal operations in newly excavated or newly tied-in areas until the Director has approved the Federal Cell Facility liner.

#### **SITE OPERATING PROCEDURES**

25. A. The Licensee shall apply on a biweekly basis (once every two weeks) between the first day of May and the last day of September a polymer-based stabilizer in accordance with the manufacturer's instructions on all exposed contaminated areas and areas of waste within the Federal Cell Facility which have been disturbed in the previous two weeks. Except when sufficient precipitation has fallen within two weeks to create ground surface conditions beyond the manufacturer's recommended specifications (the polymer-based stabilizer specifications shall be provided to the Director prior to any application thereof), the Licensee shall notify the Director's engineering staff via email when enough precipitation has fallen that is beyond manufacturer's recommended specifications and the polymer solution will not be applied.
- B. The Licensee shall minimize the dust created during the process of placing and moving waste, through the use of water. Water or other engineering controls shall be placed on roads and in areas which work is being performed.
- C. The Licensee shall cease loading, hauling and dumping of un-containerized waste whenever the five-minute average wind velocities exceed 35 miles per hour. When both the five-minute average and five-minute maximum wind velocities are less than 35 mph as observed on the meteorological station, management of un-containerized waste may resume.
26. The Licensee shall limit disposal of depleted uranium below native grade and beneath the top slope of the Federal Cell Facility.

#### **MANIFEST/SHIPPING REQUIREMENTS**

27. The Licensee shall not accept radioactive waste for storage and disposal unless the Licensee has received from the shipper a completed manifest that complies with UAC R313-15-1006 and UAC R313-25-33(8).
28. The Licensee shall maintain copies of complete manifests or equivalent documentation required under License Condition 33 until the Director authorizes their disposition.
29. The Licensee shall notify the Director in writing within seven days 24 hours followed by written notification within seven days of any waste shipment that arrives at the Licensee's property and does not comply with applicable rules or license conditions. Specifically, notifications required under this license condition shall be made for shipments that:
- A. contain wastes prohibited under Utah Code Annotated 19-3-103.7,
  - B. contains wastes not authorized in Condition 9,
  - C. do not conform to Generator Site Access requirements found in UAC R313-26-4(5), and
  - D. contains free liquids (greater than 1% unexpected free liquids) or leaking shipment discrepancies.

All other shipment discrepancies (i.e. DOT and waste manifest) shall be noted on the waste manifest and the waste manifest retained on site for Director review.

30. The Licensee shall not accept radioactive waste from entities not in compliance with UAC R313-15-1006.
31. The Licensee shall acknowledge receipt of the waste within one week of waste receipt by returning a signed copy of the manifest or equivalent document to the shipper. The shipper to be notified is the Licensee who last possessed the waste and transferred the waste to the Licensee. The returned copy of the manifest or equivalent documentation shall indicate any discrepancies between materials listed on the manifest and materials received.
32. The Licensee shall notify the shipper (e.g., the generator, the collector or processor) and the Director when any shipment or part of a shipment has not arrived within 60 days after receiving the advance manifest.
33. The Licensee shall maintain a record for each shipment of waste disposed of at the Federal Cell Facility. At a minimum, the record shall include:
  - A. The date of disposal of the waste;
  - B. The location of the waste in the disposal site;
  - C. The condition of the waste packages received;
  - D. Any discrepancy between the waste listed on the shipment manifest or shipping papers and the waste received in the shipment;
  - E. A description of any evidence of leaking or damaged packages or radiation or contamination in excess of applicable regulatory limits; and
  - F. A description of any repackaging of wastes in any shipment.

#### **FINANCIAL ASSURANCE/CLOSURE**

34. The Licensee shall at all times maintain a surety that satisfies the requirements of UAC R313-25-31 in an amount adequate to fund the decommissioning and reclamation of the Federal Cell Facility by an independent contractor.
  - A. At its election, the Licensee's annual proposed closure and post-closure costs shall be based on either:
    - i. an annual cost estimate using unit rates from the current edition of RS Means Facilities Construction Cost Data and other site-specific processes, indirect costs based on the sum of applicable direct costs in accordance with the indirect cost multipliers in Table 34 or others mutually agreed to by the Licensee and the Director; or
    - ii. an initial financial assurance determination and for each financial assurance determination every five years thereafter, a competitive site-specific estimate using a third party contractor for closure, 100 years of post-closure active care.
    - iii. either the method in Condition 34.A.i or in Condition 34.A.ii shall be updated annually as required by Condition 34.B.
  - B. The Licensee shall annually review the surety amount and basis of the surety and submit a written report of its findings by March 1 each year for Director approval. At a minimum, this annual report shall include an accounting for current site conditions and that includes an annual inflation adjustment to the financial assurance determination using the Gross Domestic Product Implicit Price Deflator of the Bureau of Economic Analysis, United States Department of Commerce, calculated by dividing the latest annual deflator by the deflator for the previous year shall be used.

- C. The combined annual surety for the Federal Cell Facility is \$9,038,431.
- D. Electronic Format. The Licensee shall provide the report in both paper and electronic formats, as directed by the Director.
- E. Within 60 days of Director approval of said annual report, the Licensee shall submit written evidence that the surety has been adequately funded.

**Table 34**

Surety Reference No.	Description	Percentage
300	Working Conditions	5.5%
301	Mobilization/ Demobilization	4.0%
302	Contingency	11.0%
303	Engineering and Redesign	2.25%
304	Overhead and Profit	19.0%
305	Management Fee and Legal Expenses	4.0%
306	DEQ Oversight	4.0%

- 35. One year prior to the anticipated closure of the Federal Cell Facility, the Licensee shall submit for review and approval by the Director a Federal Cell Facility decontamination and decommissioning plan. As part of this plan, the Licensee shall demonstrate by measurements and/or modeling that concentrations of radioactive materials which may be released to the general environment, during the compliance period after closure, will not result in an annual dose exceeding 25 millirems to the whole body, 75 millirems to the thyroid and 25 millirems to any other organ of any member of the public.

#### **SPECIAL HANDLING**

- 36. The Licensee shall notify the Director in writing at the earliest possible date, but no later than 10 days before scheduled receipt of each shipment with contact radiation levels in excess of 200 R/hr. The notification shall include the anticipated dates of receipt and plan for disposal in the Federal Cell Facility.
- 37. The RSO or other qualified person designated by the RSO shall be present for and shall observe the receipt, processing, handling and disposal of each waste package with contact radiation levels in excess of 200 R/hr.

#### **CLOSEOUT CONDITIONS**

- 38. Except as specifically provided otherwise in this license, the Licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The UAC R313 shall govern unless the statements, representations and procedures in the Licensee's application and correspondence are more restrictive than the rules.
  - A. Federal Cell Facility Radioactive Material License Application, Revision 1, dated April 9, 2021.
  - B. Lundberg, Rusty "Policy Regarding the Application of Existing Performance Assessment Rules (R313-25-9, Technical Analyses, Utah Administrative Code) and U.S. Nuclear Regulatory Commission (NRC) Direction



(SRM-SECY-2013-075) and Applicable Federal Guidance for Performance Assessments (NUREG-1573).”  
Memorandum to Division Staff – Low-Level Radioactive Waste, Utah Division of Radiation Control,  
February 25, 2014.

**DIVISION OF WASTE MANAGEMENT AND RADIATION CONTROL**

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Date

Ty Howard, Director